

CLAIMS:

1. A combustion chamber assembly for use in a combustion tool including a combustion chamber, at least one combustion chamber plate disposed in said chamber, the at least one combustion chamber plate and the chamber members being configured for relative reciprocal movement, said combustion chamber  
5 assembly comprising:

at least one latch member is associated with control of movement of at least one plate within the combustion chamber to divide said chamber into multiple volumes; and

a means for releasing said latch member for permitting relative  
10 movement of the at least one combustion chamber plate and the combustion chamber.

2. The combustion chamber assembly of claim 1 wherein the tool includes a first combustion chamber plate and a second combustion chamber plate in the combustion chamber and said latch member is configured for releasably securing the first combustion chamber plate relative to the second combustion chamber plate.

3. The combustion chamber assembly of claim 1 further including a cylindrical rod associated with one of said plates and having a shoulder wherein the latch member is on one of said shoulder and said cylindrical rod.

4. The combustion chamber assembly of claim 1 wherein one of said plates has a cylindrical portion sliding relative to said cylindrical rod, said latch member is one of said cylindrical rod and said cylindrical portion.

5. The combustion chamber assembly of claim 1 wherein the latch member is configured to be biased towards the combustion chamber to project laterally until a trigger is pulled.

6. The combustion chamber assembly of claim 1 wherein said latch member pivotably engages the at least one combustion chamber plate.

7. The combustion chamber assembly of claim 1 wherein said latch member is relatively elongate and is pivotably secured to one of the combustion chamber plates for movement between a first position in relatively axial alignment with the combustion chamber and a second position out of general axial alignment.

8. The combustion chamber assembly of claim 7 wherein said release means includes a trigger connected to said latch member for causing movement from said first position to said second position.

9. The combustion chamber assembly of claim 1 further including a combustion chamber sleeve displaceable from at least one of the combustion chamber

members and wherein said at least one latch member is disposed on the combustion chamber sleeve.

10. The combustion chamber assembly of claim 9 wherein the latch member is configured to be biased towards the combustion chamber to project laterally until a trigger is pulled.

11. In a combustion powered fastener driving tool, a combustion chamber assembly, comprising:

a combustion chamber;

at least one combustion chamber plate being displaceable in the

5 longitudinal direction of said combustion chamber;

a latch member that releasably holds the at least one combustion chamber plate for common movement with a first combustion chamber member during displacement of the at least one combustion chamber plate from a second combustion chamber member; and

10 means for releasing said latch member.

12. The combustion chamber assembly of claim 11 further including a shoulder and a cylindrical rod wherein said latch member is on one of the shoulder and the cylindrical rod.

13. The combustion chamber assembly of claim 11 further including a first position and a second position of latch member motion, wherein said release means includes a trigger connected to said latch member for causing movement from said first position to said second position.

14. A latching mechanism for use in a combustion tool including a first combustion chamber plate and a second combustion chamber plate, said combustion chamber plates being movable to a fastener driving tool, comprising:

a plurality of combustion chamber plates movable relative to each other  
5 in the combustion chamber; and

a latch means including at least one a latch member having a first position engaged with at least one of the plurality of combustion chamber plates and a second position disengaged from said at least one of the plurality of combustion chamber plates.

15. The latching mechanism of claim 14 wherein said latch member is pivotably disengaged.

16. A combustion chamber assembly for a fastener driving tool, comprising:

a combustion chamber plate;

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a sleeve movable with respect to said combustion chamber plate;  
a latch member associated with said sleeve for positioning the  
combustion chamber plate against said sleeve; and  
said sleeve and said combustion chamber plate being displaceable  
relative to a tool housing.

17. The combustion chamber assembly of claim 16 wherein the  
latch member reciprocates transversely relative to the movement of said sleeve  
relative to said tool housing.

18. The combustion chamber assembly of claim 16 further  
including a biasing element between the plate and the sleeve.

19. The combustion chamber assembly of claim 16 further  
including a stop disposed in said chamber for restricting movement of the plate.

20. The combustion chamber assembly of claim 16 wherein the  
stop defines a reduced diameter sleeve to prevent plate movement.

21. A latching mechanism for a fastener driving tool having at  
least one combustion chamber plate, comprising:

a sleeve movable with respect to at least one combustion chamber plate;  
and

5           a plurality of latches configured for retaining at least one combustion  
chamber plate in a first position and a second position.

22.     The latching mechanism of claim 21 wherein said plurality of  
latches have different circumferential angles such that at least one of the combustion  
chamber plates is not aligned with at least one of the plurality of latches in a first  
position and is aligned with at least one of the plurality of latches in a second position.

23.     The latching mechanism of claim 21 further comprising a cam on  
the housing for engaging at least one of a plurality of latches.

24.     The latching mechanism of claim 21 further including a spring  
associated with the combustion chamber plate wherein the spring biases the chamber  
plate against each of the plurality of latches.

25.     The latching mechanism of claim 18 wherein the latch engages a  
cam for transversely moving the cam relative to the movement of said sleeve.